

# **Mathematics**

# **Grade 11**

## **PA Alternate Eligible Content**

## **Alignment Review**

**PA Core Standards:**

**CC.2.1.HS.F.1:** Apply and extend the properties of exponents to solve problems with rational exponents.

<b>Alternate Eligible Content Code</b>	<b>ALTERNATE ELIGIBLE CONTENT</b>

**PA Core Standards:**

**CC.2.1.HS.F.2:** Apply properties of rational and irrational numbers to solve real world or mathematical problems.

<b>Alternate Eligible Content Code</b>	<b>ALTERNATE ELIGIBLE CONTENT</b>
CC.2.1.HS.F.2.a	Convert between a rational number to a decimal in real-life scenario

**PA Core Standards:**

**CC.2.1.HS.F.3:** Apply quantitative reasoning to choose and Interpret units and scales in formulas, graphs and data displays.

<b>Alternate Eligible Content Code</b>	<b>ALTERNATE ELIGIBLE CONTENT</b>
CC.2.1.HS.F.3.a	Identify and interpret scale in a real-life situations

**PA Core Standards:**

**CC.2.1.HS.F.4:** Use units as a way to understand problems and to guide the solution of multi-step problems.

<b>Alternate Eligible Content Code</b>	<b>ALTERNATE ELIGIBLE CONTENT</b>
CC.2.1.HS.F.4.a	Determine the necessary unit(s) to use to solve real world problems.
CC.2.1.HS.F.4.b	Solve real world problems involving units of measurement.

**PA Core Standards:**

**CC.2.1.HS.F.5:** Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.

Alternate Eligible Content Code	ALTERNATE ELIGIBLE CONTENT

**PA Core Standards:**

**CC.2.1.HS.F.6:** Extend the knowledge of arithmetic operations and apply to complex numbers.

Alternate Eligible Content Code	ALTERNATE ELIGIBLE CONTENT

**PA Core Standards:**

**CC.2.1.HS.F.7:** Apply concepts of complex numbers in polynomial identities and quadratic equations to solve problems.

Alternate Eligible Content Code	ALTERNATE ELIGIBLE CONTENT

**PA Core Standards:**

**CC.2.2.HS.C.1:** Use the concept and notation of functions to interpret and apply them in terms of their context.

Alternate Eligible Content Code	ALTERNATE ELIGIBLE CONTENT
CC.2.2.HS.C.1.a	Given a linear equation with one operation, identify a missing coordinate in a table of values containing at least 2 complete ordered pairs.

**PA Core Standards:**

CC.2.2.HS.C.2: Graph and analyze functions and use their properties to make connections between the different representations.

Alternate Eligible Content Code	ALTERNATE ELIGIBLE CONTENT

**PA Core Standards:**

CC.2.2.HS.C.3: Write functions or sequences that model relationships between two quantities.

Alternate Eligible Content Code	ALTERNATE ELIGIBLE CONTENT
CC.2.2.HS.C.3.a	Given a table or graph, describe the relationship between two quantities.

**PA Core Standards:**

CC.2.2.HS.C.4: Interpret the effects transformations have on functions and find the inverses of functions.

Alternate Eligible Content Code	ALTERNATE ELIGIBLE CONTENT

**PA Core Standards:**

CC.2.2.HS.C.5: Construct and compare linear, quadratic, and exponential models to solve problems.

Alternate Eligible Content Code	ALTERNATE ELIGIBLE CONTENT
CC.2.2.HS.C.5.a	In a linear situation using graphs or numbers, predict and/or interpret the effect of a change in rate or a change in a variable on the other feature.
CC.2.2.HS.C.5.b	Select the appropriate graphical representation of a linear model based on real world events.

**PA Core Standards:**

CC.2.2.HS.C.6: Interpret functions in terms of the situations they model.

Alternate Eligible Content Code	ALTERNATE ELIGIBLE CONTENT

**PA Core Standards:**

CC.2.2.HS.C.7: Apply radian measure of an angle and the unit circle to analyze the trigonometric functions.

Alternate Eligible Content Code	ALTERNATE ELIGIBLE CONTENT

**PA Core Standards:**

CC.2.2.HS.C.8: Choose trigonometric functions to model periodic phenomena and describe the properties of the graphs.

Alternate Eligible Content Code	ALTERNATE ELIGIBLE CONTENT

**PA Core Standards:**

CC.2.2.HS.C.9: Prove the Pythagorean identity and use it to calculate trigonometric ratios.

Alternate Eligible Content Code	ALTERNATE ELIGIBLE CONTENT

**PA Core Standards:**

CC.2.2.HS.D.1: Interpret the structure of expressions to represent a quantity in terms of its context.

Alternate Eligible Content Code	ALTERNATE ELIGIBLE CONTENT
CC.2.2.HS.D.1.a	Select an algebraic expression that matches a word problem.

**PA Core Standards:**

CC.2.2.HS.D.2: Write expressions in equivalent forms to solve problems.

Alternate Eligible Content Code	ALTERNATE ELIGIBLE CONTENT

**PA Core Standards:**

CC.2.2.HS.D.3: Extend the knowledge of arithmetic operations and apply to polynomials.

Alternate Eligible Content Code	ALTERNATE ELIGIBLE CONTENT

**PA Core Standards:**

CC.2.2.HS.D.4: Understand the relationship between zeros and factors of polynomials to make generalizations about functions and their graphs.

Alternate Eligible Content Code	ALTERNATE ELIGIBLE CONTENT

**PA Core Standards:**

CC.2.2.HS.D.5: Use polynomial identities to solve problems.

Alternate Eligible Content Code	ALTERNATE ELIGIBLE CONTENT

**PA Core Standards:**

CC.2.2.HS.D.6: Extend the knowledge of rational functions to rewrite in equivalent forms.

Alternate Eligible Content Code	ALTERNATE ELIGIBLE CONTENT

**PA Core Standards:**

CC.2.2.HS.D.7: Create and graph equations or inequalities to describe numbers or relationships.

Alternate Eligible Content Code	ALTERNATE ELIGIBLE CONTENT
CC.2.2.HS.D.7.a	Translate a real-world problem into a one variable linear equation.
CC.2.2.HS.D.7.b	Solve equations with one or two variables using equations or graphs.

**PA Core Standards:**

CC.2.2.HS.D.8: Apply inverse operations to solve equations or formulas for a given variable.

Alternate Eligible Content Code	ALTERNATE ELIGIBLE CONTENT
CC.2.2.HS.D.8.a	Solve a linear equation to find a missing variable given the area, or volume and the other attribute(s).

**PA Core Standards:**

CC.2.2.HS.D.9: Use reasoning to solve equations and justify the solution method.

Alternate Eligible Content Code	ALTERNATE ELIGIBLE CONTENT
CC.2.2.HS.D.9.a	Order a given sequence of steps to solve an equation.

**PA Core Standards:**

CC.2.2.HS.D.10: Represent, solve, and interpret equations/inequalities and systems of equations/inequalities algebraically and graphically.

Alternate Eligible Content Code	ALTERNATE ELIGIBLE CONTENT

**PA Core Standards:**

CC.2.3.HS.A.1: Use geometric figures and their properties to represent transformations in the plane.

Alternate Eligible Content Code	ALTERNATE ELIGIBLE CONTENT

**PA Core Standards:**

CC.2.3.HS.A.2: Apply rigid transformations to determine and explain congruence.

Alternate Eligible Content Code	ALTERNATE ELIGIBLE CONTENT



**PA Core Standards:**

CC.2.3.HS.A.3: Verify and apply geometric theorems as they relate to geometric figures.

Alternate Eligible Content Code	ALTERNATE ELIGIBLE CONTENT

**PA Core Standards:**

CC.2.3.HS.A.4: Apply the concept of congruence to create geometric constructions.

Alternate Eligible Content Code	ALTERNATE ELIGIBLE CONTENT

**PA Core Standards:**

CC.2.3.HS.A.5: Create justifications based on transformations to establish similarity of plane figures.

Alternate Eligible Content Code	ALTERNATE ELIGIBLE CONTENT

**PA Core Standards:**

CC.2.3.HS.A.6: Verify and apply theorems involving similarity as they relate to plane figures.

Alternate Eligible Content Code	ALTERNATE ELIGIBLE CONTENT

**PA Core Standards:**

CC.2.3.HS.A.7: Apply trigonometric ratios to solve problems involving right triangles.

Alternate Eligible Content Code	ALTERNATE ELIGIBLE CONTENT

**PA Core Standards:**

CC.2.3.HS.A.8: Apply geometric theorems to verify properties of circles.

Alternate Eligible Content Code	ALTERNATE ELIGIBLE CONTENT

**PA Core Standards:**

CC.2.3.HS.A.9: Extend the concept of similarity to determine arc lengths and areas of sectors of circles.

Alternate Eligible Content Code	ALTERNATE ELIGIBLE CONTENT

**PA Core Standards:**

CC.2.3.HS.A.10: Translate between the geometric description and the equation for a conic section.

Alternate Eligible Content Code	ALTERNATE ELIGIBLE CONTENT

**PA Core Standards:**

CC.2.3.HS.A.11: Apply coordinate geometry to prove simple geometric theorems algebraically.

Alternate Eligible Content Code	ALTERNATE ELIGIBLE CONTENT

**PA Core Standards:**

CC.2.3.HS.A.12: Explain volume formulas and use them to solve problems.

Alternate Eligible Content Code	ALTERNATE ELIGIBLE CONTENT
CC.2.3.HS.A.12.a	Compare the volume of two objects with one equivalent attribute.

**PA Core Standards:**

CC.2.3.HS.A.13: Analyze relationships between two-dimensional and three dimensional objects.

Alternate Eligible Content Code	ALTERNATE ELIGIBLE CONTENT
CC.2.3.HS.A.13.a	Match the shape of real-world objects to two-dimensional and three-dimensional shapes (e.g., the trunk of a tree is cylindrical in shape; a car is cube in shape; the flower of a sunflower is circular in shape; a bookshelf is rectangular prism in shape).

**PA Core Standards:**

CC.2.3.HS.A.14: Apply geometric concepts to model and solve real world problems.

Alternate Eligible Content Code	ALTERNATE ELIGIBLE CONTENT
CC.2.3.HS.A.14.a	Compare the area of two objects with one equivalent attribute.

**PA Core Standards:**

CC.2.4.HS.B.1: Summarize, represent, and interpret data on a single count or measurement variable.

Alternate Eligible Content Code	ALTERNATE ELIGIBLE CONTENT
CC.2.4.HS.B.1.a	Complete or select a graph (dot plots, histograms, or box plots) given a data set.
CC.2.4.HS.B.1.b	Identify the outlier in a set of data.
CC.2.4.HS.B.1.c	Interpret the given means and or medians of two sets of data,

**PA Core Standards:**

CC.2.4.HS.B.2: Summarize, represent, and interpret data on two categorical and quantitative variables.

Alternate Eligible Content Code	ALTERNATE ELIGIBLE CONTENT

**PA Core Standards:**

CC.2.4.HS.B.3: Analyze linear models to make interpretations based on the data.

Alternate Eligible Content Code	ALTERNATE ELIGIBLE CONTENT
CC.2.4.HS.B.3.a	Select an appropriate statement that describes the relationship between variables.

**PA Core Standards:**

CC.2.4.HS.B.4: Recognize and evaluate random processes underlying statistical experiments.

Alternate Eligible Content Code	ALTERNATE ELIGIBLE CONTENT

**PA Core Standards:**

CC.2.4.HS.B.5: Make inferences and justify conclusions based on sample surveys, experiments, and observational studies.

Alternate Eligible Content Code	ALTERNATE ELIGIBLE CONTENT
CC.2.4.HS.B.5.a	Make or select an appropriate statement about findings.
CC.2.4.HS.B.5.b	Apply the results of the data to a real world situation.

**PA Core Standards:**

CC.2.4.HS.B.6: Use the concepts of independence and conditional probability to interpret data.

Alternate Eligible Content Code	ALTERNATE ELIGIBLE CONTENT

**PA Core Standards:**

CC.2.4.HS.B.7: Apply the rules of probability to compute probabilities of compound events in a uniform probability model.

Alternate Eligible Content Code	ALTERNATE ELIGIBLE CONTENT
CC.2.4.HS.B.7.a	Select or make an appropriate statement based on real world examples of probability.
CC.2.4.HS.B.7.b	Identify and describe the degree to which something is rated (likely/unlikely, positive/negative) based on numerical information.